

Appl. No. 09/643,004

In the Claims

Claims 9-41 and 47-69 are pending in the application with claims 9, 31, and 47 amended herein.

Claims 1-8 (canceled).

9. (currently amended) A low selectivity depositor method comprising:

forming a first part of a nucleation layer directly on a first surface of a substrate;

forming a second part of a nucleation layer directly on a second surface of the substrate; and

forming a deposition layer comprising a chemisorbed first specie layer about one monolayer thick directly on the first and second parts of the nucleation layer substantially non-selectively on the first part of the nucleation layer compared to the second part, even though the first and second surfaces of the substrate exhibit a property of the deposition layer forming less readily on the first surface compared to the second surface.

10. (original) The deposition method of claim 9 wherein the forming the first and the second part of the nucleation layer occurs by chemical vapor deposition.

11. (original) The deposition method of claim 9 wherein the forming the first and the second part of the nucleation layer occurs by atomic layer deposition.

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12. (original) The deposition method of claim 11 wherein the atomic layer deposition comprises contacting the substrate with only one precursor specie at a time.

13. (original) The deposition method of claim 9 wherein the forming the first and the second part of the nucleation layer occurs simultaneously.

14. (original) The deposition method of claim 9 wherein the forming the first and the second part of the nucleation layer occurs simultaneously and the nucleation layer forms substantially non-selectively on the first surface of the substrate compared to the second surface.

15. (original) The deposition method of claim 9 wherein the forming the deposition layer is performed in situ of the forming the first and the second part of the nucleation layer.

16. (original) The deposition method of claim 9 wherein the second part of the nucleation layer comprises a plurality of components also comprised by the first part.

17. (original) The deposition method of claim 9 wherein the first and the second parts of the nucleation layer comprise silicon nitride, aluminum oxide, or tantalum oxide.

18. (original) The deposition method of claim 9 wherein the first and the second parts of the nucleation layer consist essentially of same components in approximately same proportions.

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19. (original) The deposition method of claim 9 wherein a composition of the first part of the nucleation layer differs from a composition of the second part of the nucleation layer.

20. (original) The deposition method of claim 9 wherein the first and the second parts of the nucleation layer comprise silicon nitride and the first part further comprises oxygen.

21. (original) The deposition method of claim 9 wherein a thickness of the nucleation layer comprises less than about 20 Angstroms.

22. (original) The deposition method of claim 21 wherein the thickness comprises less than about 6 Angstroms.

23. (original) The deposition method of claim 9 wherein a thickness of the first part of the nucleation layer is greater than 50% of a thickness of the second part.

24. (original) The deposition method of claim 23 wherein the thickness of the first part is greater than 80% of the thickness of the second part.

25. (previously presented) The deposition method of claim 9 wherein the chemisorbed first specie layer is saturated and uniformly one monolayer thick.

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26. (previously presented) The deposition method of claim 9 wherein the first surface of the substrate exhibits a property of chemisorbing the first specie at a slower rate compared to the second surface.

27. (previously presented) The deposition method of claim 9 wherein the forming the deposition layer further comprises forming a layer at least one monolayer thick of a chemisorbed second specie different from the first specie on the first specie layer.

28. (previously presented) The deposition method of claim 27 wherein the second specie layer consists essentially of a monolayer.

29. (original) The deposition method of claim 27 wherein the first and second specie layers, in combination, comprise silicon and nitrogen.

30. (original) The deposition method of claim 27 wherein the nucleation layer comprises a material also comprised by the first and second specie layers combined.

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31. (currently amended) A low selectivity deposition method comprising:

simultaneously forming a first part of a nucleation layer directly on an insulative oxide material and a second part of the nucleation layer directly on a semiconductive material; and

contacting the nucleation layer with an initiation precursor and forming an initiation layer about one monolayer thick directly on the first and second parts of the nucleation layer substantially non-selectively on the first part of the nucleation layer compared to the second part.

32. (previously presented) The deposition method of claim 31 wherein the initiation layer is saturated and uniformly one monolayer thick.

33. (original) The deposition method of claim 31 wherein the first and the second parts of the nucleation layer consist essentially of same components in approximately same proportions.

34. (original) The deposition method of claim 31 wherein the first and the second parts of the nucleation layer comprise silicon nitride and the first part further comprises oxygen.

35. (original) The deposition method of claim 31 wherein a thickness of the nucleation layer comprises less than about 20 Angstroms.

36. (original) The deposition method of claim 31 wherein a thickness of the first part of the nucleation layer is greater than about 50% of a thickness of the second part.

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37. (original) The deposition method of claim 31 wherein the insulative oxide exhibits a property of chemisorbing the initiation precursor at a slower rate compared to the semiconductive material.

38. (original) The deposition method of claim 31 further comprising contacting the initiation layer with at least one deposition precursor and forming a deposition layer at least one monolayer thick on the initiation layer.

39. (original) The deposition method of claim 38 wherein the deposition layer consists essentially of a monolayer.

40. (original) The deposition method of claim 38 wherein the deposition precursor consists essentially of a single precursor specie.

41. (original) The deposition method of claim 38 wherein the initiation and deposition layers, in combination, comprise silicon and nitrogen, or tantalum and oxygen, or aluminum and oxygen.

Claims 42-46 (canceled).

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47. (currently amended) A low selectivity deposition method comprising:

atomic layer depositing a nucleation substance chemisorbed directly on a first surface and a second surface of a substrate substantially non-selectively, wherein the first surface exhibits a property of chemisorbing an atomic layer deposition precursor at a slower rate compared to the second surface and the nucleation substance exhibits a property of chemisorbing the precursor at an approximately equal rate over the first surface compared to over the second surface.

48. (original) The deposition method of claim 47 wherein the nucleation substance comprises an approximately homogeneous composition over the first and the second surface.

49. (original) The deposition method of claim 47 wherein the nucleation layer comprises silicon nitride and a nucleation layer part that is over the first surface further comprises oxygen.

50. (original) The deposition method of claim 47 wherein a thickness of the nucleation layer comprises less than about 20 Angstroms.

51. (original) The deposition method of claim 47 wherein a thickness of a nucleation layer part that is over the first surface is greater than 50% of a thickness a nucleation layer part that is over the second surface.

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52. (previously presented) A low selectivity deposition method comprising:

placing a substrate in a deposition chamber;

forming a first part of a nucleation layer on a first surface of the substrate in the chamber;

forming a second part of a nucleation layer on a second surface of the substrate in the chamber; and

without removing the substrate from the chamber, forming a layer about one monolayer thick of a first chemisorbed precursor on the first and second parts of the nucleation layer substantially non-selectively on the first part of the nucleation layer compared to the second part.

53. (original) The deposition method of claim 52 wherein the forming the first and the second part of the nucleation layer occurs simultaneously and the nucleation layer forms substantially non-selectively on the first surface of the substrate compared to the second surface.

54. (original) The deposition method of claim 52 wherein the first surface of the substrate exhibits a property of chemisorbing the first precursor at a slower rate compared to the second surface.

55. (original) The deposition method of claim 52 wherein the first surface comprises borophosphosilicate glass and the second surface comprises polysilicon.